

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

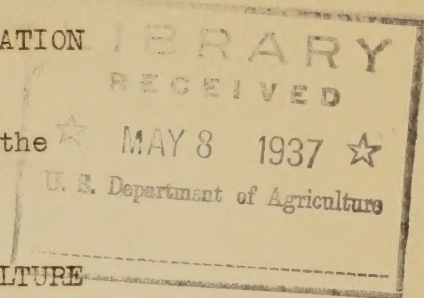
For no. 15-
See 100
H313P

USDA Form 0.23

ANIMAL HUSBANDRY DIVISION
HAWAII AGRICULTURAL EXPERIMENT STATION
HONOLULU, HAWAII

Under the joint supervision of the

UNIVERSITY OF HAWAII
and the
UNITED STATES DEPARTMENT OF AGRICULTURE



Progress Notes on Experiments and Other Items of Interest

No. 14

May, 1936

These progress notes on experimental work and other items of interest to livestock men in the Territory are issued from time to time by the Animal Husbandry Division. You are invited to suggest other lines of research that you deem important and to submit inquiries to the University.

A GENERAL REPORT
OF THE ANIMAL HUSBANDRY DIVISION
OF THE HAWAII AGRICULTURAL EXPERIMENT STATION
FOR THE FISCAL YEAR ENDING JUNE 30, 1935

by

L. A. Henke and G. W. H. Goo

Introduction

This issue of the Progress Notes in place of giving the detailed results of some definite experiment presents general information about the University dairy and piggery such as production of individual animals, feed costs, health records, etc. A brief account of the experimental work of the year is also presented.

UNIVERSITY OF HAWAII
HAWAII LABORATORY, KAPAHULU STATION
HONOLULU, HAWAII

Under the joint sponsorship of the

UNIVERSITY OF HAWAII

and the

UNITED STATES DEPARTMENT OF AGRICULTURE

Program Notes on Experimental and Other Work at Hawaii

Vol. 1

No. 1

These program notes on experimental work and other lines of interest in
agriculture and in the forestry are issued from time to time by the Hawaii
Laboratory Division. You are invited to suggest other lines of research that
you deem important, and to submit information to the University.

A GENERAL REPORT
ON THE HAWAII LABORATORY DIVISION
OF THE UNIVERSITY OF HAWAII
FOR THE YEAR 1950-1951
JANUARY 1952

L. A. Jones and L. W. Jones

Introduction

This issue of the Program Notes is placed at
your disposal for the purpose of giving you
information on the work of the Hawaii Laboratory
Division. It is hoped that it will be of
interest to you and that it will be of
value in your work. It is also hoped
that it will be of value in your work.

DAIRY CATTLE

By G.W.H. Goo

At the close of the fiscal year the University herd consisted of 43 Holsteins and 11 Guernseys. During the fiscal year 5 Holstein heifers and one Guernsey heifer were registered..

Thirty-three different cows were milked, producing 213,360 pounds of milk. Seven cows were in the herd part of the year, leaving an average production of 7,246 pounds for the 26 full-year cows. Segregated as to breeds, 20 full-year Holstein cows averaged 7,698 pounds and 6 full-year Guernseys averaged 5,740 pounds.

During the year, two female calves were sold as breeders. Seventeen Holstein and Guernsey calves were sold as veal. One heifer could not be bred and was sold.

The details of milk production, butter fat production, feed cost per cow, total milk production cost, etc. are given in the following pages.

JULY 1 TO JUNE 30

Part year only.

YEARLY PRODUCTION RECORDS OF COWS IN THE UNIVERSITY OF HAWAII HERD

JULY 1 TO JUNE 30 - Continued.

Holstein	Guernsey	Holstein	Guernsey	Holstein	Guernsey	Holstein	Holstein	Holstein	Holstein	Holstein
88	89	92	96	99	101	103	104	105	108	109
Uniwai	Floss	Uniwai				Island-		Uniwai		
DeKol	Boy's	Prilly	Islander's	Uniwai	Islander	er's	Uniwai	Baby	Uniwai	Uniwai
Pontiac	Clementina	Korndyke	Lulu	Sarcastic	Lady	Alberta of	Pabst	Gem	Sarcastic	Creator
10-31-27	11-1-27	11-22-27	3-24-28	7-27-28	9-20-28	Hawaii	Korndyke	Segis	Prilly	Joletta
3-1-30	7-18-30	6-7-30	11-27-30	12-11-30	7-3-31	12-28-28	1-8-29	1-21-29	6-22-29	6-30-29
						1-28-33	7-20-31	9-21-32	1-13-32	8-1-32
2957#	608#	541#								
6344	5217	4696	3317#	3957#						
5938	6525	6373	3394	6933	6463#		6212#		4123#	
9942	5713	3285	4769	7495	5960	2999#	6791	6585#	5271	6833#
10356	7368	6433	7178	7096	7040	6084	9071	6736	5736	7523
10118	4790	5964	4584	8749	6877	5625	6976	9311	7806	8725
8540	5923	5350	4981	7568	6326	5855	7613	8023	6271	8124

Part year only.

JULY 1 TO JUNE 30 - Continued.

-5-

YEARLY PRODUCTION RECORDS OF COWS IN THE UNIVERSITY OF HAWAII HERD

JULY 1 TO JUNE 30 - Continued.

Holstein , 134	##Average Milk Production	## Average of all full year cows
Uniwai	Full	
Pontiac	Year	
Sarcastic Guernseys	Holsteins	
1-20-33		
2-6-35		
	7826	
	7902	
	7907	5632
	8207	5200
	4756	6281
	5085	6763
	5752	6937
	6737	7427
2342#	5740	7698
	6074	6925
		6706

Includes cows which were in herd at years indicated; some of which are no longer in herd.

BUTTER FAT PRODUCTION AND FEED COST OF UNIVERSITY HERD

JULY 1, 1934 TO JUNE 30, 1935

No.	Breed	Date of Birth	Pounds Fat	Average Percent Fat	Feed Cost	Feed Cost Per Qt. Milk
51	G	6-16-23	276.36	4.50	\$136.00	\$0.047
65	H	9-25-25	262.80	3.68	154.77	0.046
68	H	1-14-26	266.37	3.72	135.88	4.041
71	H	2-23-26	222.37	3.63	147.24	0.052
72	H	5- 8-26	225.22	3.65	151.38	0.053
74	H	7-28-26	319.56	3.71	150.23	0.037
79	H	2- 6-27	362.35	3.84	164.56	0.037
82	H	3-19-27	273.73	4.06	154.86	0.049
83	H	4-24-27	283.05	3.96	126.90	0.037
86	G	9- 8-27	319.21	5.15	146.69	0.050
88	H	10-31-27	339.89	3.42	182.84	0.039
89	G	11- 1-27	239.10	5.25	143.57	0.030
92	H	11-22-27	239.60	3.97	131.99	0.048
96	G	3-24-28	230.41	5.19	143.34	0.067
99	H	7-27-28	309.41	3.54	138.59	0.034
101	G	9-20-28	303.67	4.49	158.11	0.049
103	G	12-28-28	313.29	5.62	143.19	0.055
104	H	1- 8-29	248.37	3.59	121.31	0.037
105	H	1-21-29	393.58	4.30	146.71	0.034
108	H	6-22-29	286.11	3.74	133.83	0.037
109	H	6-30-29	301.25	3.50	141.41	0.035
111	H	12-15-29	345.72	3.45	171.40	0.036
112	H	3-20-30	316.95	3.40	176.97	0.041
122	H	3-10-31	278.87	3.66	168.31	0.046
123	H	5- 4-31	161.02	3.84	115.11	0.058
#124	H	8-19-31	--	--	39.96	--
125	H	9- 4-31	238.36	4.16	116.78	0.043
#127	H	2- 8-32	233.93	3.60	137.16	--
#128	H	6- 1-32	191.14	3.43	141.41	--
#129	H	8-27-32	139.78	3.30	133.22	--
#130	H	9- 3-32	103.72	3.43	116.10	--
#131	H	9- 6-32	99.61	3.30	130.65	--
132	H	12-11-32	--	--	110.81	--
#133	H	12-17-32	5.78	3.50	98.49	--
#134	H	1-20-33	82.23	3.50	111.40	--
135	H	3-29-33	--	--	97.55	--
136	H	5- 4-33	--	--	109.16	--
137	G	5- 8-33	--	--	98.12	--
138	H	10-21-33	--	--	92.92	--
139	G	11-13-33	--	--	94.47	--
140	H	12-24-33	--	--	89.03	--
141	H	1- 9-34	--	--	86.16	--
142	H	3- 5-34	--	--	85.67	--
#143	H	11- 5-34	--	--	126.09	--
#144	H	12- 4-34	--	--	36.34	--

No.	Breed	Date of Birth	Pounds Fat	Average Percent Fat	Feed Cost	Feed Cost Per Qt. Milk
#145	H	12-10-34	--	--	\$118.57	--
#146	H	2-25-35	--	--	66.82	--
#147	G	4-17-35	--	--	25.61	--
##UKPD	HB	6- 9-27	--	--	144.81	--
CB	GB	1- 4-32	--	--	134.89	--
PEM	HB	2-17-34	--	--	136.67	--
SME	HB	1-29-34	--	--	138.10	--
AD	GB	2-12-34	--	--	138.06	--
###Average (Holsteins)			283.73	3.74	\$146.55	\$0.041
Average (Guernseys)			280.34	5.03	145.16	0.054

#

Not full year animals.

##

Bull Initials.

###

Cows in herd during full year.

BRIEF ABSTRACTS TAKEN FROM THE PROJECT FILES
OF SOME INVESTIGATIONS CARRIED ON IN THE
DAIRY DIVISION DURING 1934-1935

By L. A. Henke

Agglutination Abortion Tests

Thirteen tests have been made on the University of Hawaii Dairy Herd with the following results. These tests were made by the Veterinary Division of the Board of Agriculture and Forestry.

Date	Negative	Suspicious	Positive
February 4, 1930	20	0	2
May 5, 1930	40	0	11
September 9, 1930	34	9	10
December 15, 1930	40	3	0
March 11, 1931	39	3	8
August 28, 1931	40	2	7
January 13, 1932	38	10	0
May 24, 1932	37	3	6
August 20, 1932	49	2	5
December 14, 1932	51	2	2
June 1, 1933	31	13	5
November 8, 1933	33	8	0
October 27, 1934	39	1	0

Positive and suspicious animals are separated from the rest of the herd. While in general, succeeding tests on the same animal show the same reaction, this is not entirely true as the data above shows.

Percent Reproductive Efficiency of Dairy Herd

	Holsteins	Guernseys	Entire Herd
1929-30	76.1	68.6	74.2
1930-31	61.1	37.6	54.4
1931-32	71.2	75.5	72.3
1932-33	67.7	57.8	64.6
1933-34	73.4	57.7	70.0
1934-35	86.1	94.4	87.6
	<hr/>	<hr/>	<hr/>
6 year average	72.4	65.3	70.5

Bull Services Required Per Conception

	Antonette's Duke	Uniwai Korndyke Pontiac DeKol	Clementina's Boy	Prince Elreka Matador	All bulls 1934-35	All bulls 1933-34
No. cows served	2	19	11	5	34	40
Total services	2	24	12	5	43	84
No. conceptions	1	16	11	5	33	26
No. services required per conception	2.0	1.5	1.09	1.0	1.30	3.23
No. cows pregnant after only one service	1	11	10	5	27	21
% cows pregnant after only one service	50.0	57.9	90.9	100.0	79.4	52.5
No. cows pregnant after two or less services	1	16	11		30	23
% cows pregnant after two or less services	50.0	84.2	100		97.1	57.5

Tuberculin Test

The entire herd was tuberculin tested on November 2, 1934 by the Veterinary Division of the Board of Agriculture and Forestry and no reactors were found.

Composition and Bacterial Content of the University Dairy Milk

Sample bottles selected at random by the milk inspectors and tested by the Food Commissioner and Analyst of the Board of Health showed the following:

<u>Date</u>	<u>Sediment Rating</u>	<u>Fat</u>	<u>Solids</u>	<u>Bacteria</u>
		<u>%</u>	<u>%</u>	<u>Count</u>
July 31, 1934	Clean	4.0	12.9	4,900
Sep. 14, 1934	Clean	4.2	13.4	57,000
Nov. 3, 1934	Clean	4.0	12.6	1,500
Nov. 30, 1934	Clean	4.3	13.1	2,500
Jan. 11, 1935	Clean	4.0	12.9	6,500
Mar. 21, 1935	F. Clean	4.1	12.8	7,400
Apr. 6, 1935	Clean	3.7	12.3	3,000
May 23, 1935	Clean	4.2	12.3	4,200

Pineapple Bran vs. Beet Pulp as

Supplements to Grain Rations Fed to Dairy Cows

In a second fifteen week experiment with six cows, there was no significant difference in the body weight, fat content of the milk or quantity of milk produced when four pounds of pineapple bran were

substituted for four pounds of beet pulp, and there was a saving of 37.5 percent in the cost of these supplemental feeds when pineapple bran was substituted for beet pulp.

The results of this second experiment agreed very closely with those of the first experiment.

Value of a Cassava-Coconut Oil

Cake Meal Combination as Part of the Ration for Dairy Cows

In a twelve week experiment with six cows a mixture of 45 percent cassava meal, 10 percent coconut oil cake meal, $32\frac{1}{2}$ percent soybean oil cake meal, 10 percent wheat bran and 2.5 percent minerals was worth, based on the amount of milk produced, 94.7 percent as much as the University medium high protein mixture consisting of 48 percent wheat bran, 30 percent rolled barley, 20 percent soybean oil cake meal and 2 percent minerals.

Rations Using Maximum Amounts

of Pineapple Bran and Cane Molasses for Dairy Cows

In two twelve week experiments, each with six cows a mixture containing 44.5 percent pineapple bran and 17.8 percent cane molasses was compared with the medium high protein ration described above consisting largely of imported feeds.

Milk production was about 4 percent higher on the medium high protein feed but the cost of the concentrate feed used per unit quantity of milk produced was about 30 percent less when feeding the pineapple bran-molasses ration.

Both experiments gave similar results.

Green Alfalfa vs. Green Sudan Grass for Dairy Cattle

In one twelve week experiment with six cows, green alfalfa did not prove superior to green sudan grass based on resulting milk production. The same concentrate ration was fed to both lots of cows which supplied enough protein when sudan grass was fed and materially more protein than was needed according to feeding standards when green alfalfa was fed.

Alfalfa was more palatable, the cows consuming a daily average of 81.4 pounds of green alfalfa and 76.5 pounds of green sudan.

Napier Grass Fed Whole vs.

Cut (ensilage cutter) Napier Grass as a Roughage For Dairy Cows

In one twelve week experiment with eight cows, milk production was practically the same on whole as on cut Napier grass, in spite of the fact that consumption of the cut Napier grass was lower. The experiment needs to be repeated before drawing definite conclusions.

Green Napier Grass vs. Green

Sudan Grass as Roughages for Dairy Cows

In two twelve week experiments, one with six and the other with eight cows, Napier grass was slightly less palatable, average consumption for both experiments per cow per day being 63.6 pounds of green sudan and only 60.7 pounds of green Napier grass. Milk production averaged 7 percent lower when the Napier grass was fed. The same concentrate mixture was fed to each lot of cows.

SWINE

At the close of the fiscal year, 9 breeding hogs, (4 Berkshires and 5 Tamworths) and 27 smaller pigs were on the University Farm. All the breeding hogs were purebred and registered.

During the year 5 Tamworth boars, 5 Tamworth gilts, 2 Berkshire boars and 1 Berkshire gilt were sold to hog raisers as breeding animals. Thirty-three hogs were sold to the meat market.

BRIEF ABSTRACTS TAKEN FROM THE PROJECT FILES OF SOME INVESTIGATIONS CARRIED ON IN THE SWINE DIVISION DURING 1934-35.

By L. A. Henke

Hog Cholera Protection

All hogs on the University Farm not previously protected against hog-cholera were given the serum-virus on October 16, 1934 and another group born since that date were vaccinated on February 25, 1935. These treatments were entirely for protection; no hog cholera was experienced during the year.

Value of Bananas for Fattening Swine

In a 113-day experiment with 8 hogs having an average initial weight of 66.5 pounds, bananas when constituting 25 percent of the concentrate mixture fed to hogs were worth 38.6 percent as much as the grain mixture which they in part replaced.

Value of Cassava Meal for Fattening Swine

In a 33-day test with six hogs having an initial weight of 80 pounds, a mixture consisting of 84.5 percent cassava meal and 15.5 percent soybean oil cake meal was worth 94.8 percent as much as barley for producing gains in hogs.

Sweet Potatoes for Fattening Swine

In a 112-day test with swine, raw sweet potatoes supplemented only with fish meal were unsatisfactory as a feed but when a limited quantity of the regular hog fattening ration (2 pounds per pig per day) were fed, sweet potatoes with hogs selling at 12 cents per pound were worth \$18 to \$30 per ton.

Pineapple Bran-Molasses Mixtures for Fattening Swine

In two experiments with hogs having an initial weight of about 68 pounds, a mixture including 50 percent pineapple bran and 20 percent cane molasses with protein supplements was compared with our standard fattening mixture consisting of 68 percent barley, 20 percent molasses and protein supplements.

Daily average gains on the standard ration were 1.49 pounds as compared with only 0.76 pounds on the pineapple bran-molasses ration. Feed costs per pound of gain were practically the same on the two rations. Pineapple bran in these tests was valued at \$14.00 and cane molasses at \$10.00 per ton. Daily feed consumption was much lower on the pineapple bran-molasses ration.

COOPERATIVE INVESTIGATIONS WITH RANCHERS AND PLANTATIONS

Pineapple Bran as a Feed for Mules

In a 162-day experiment with 18 sugar plantation mules, the following concentrate mixtures were compared

	<u>"Barley" Ration</u>	<u>"Pineapple Bran" Ration</u>
Pineapple bran	28.3%	53.3%
Barley	56.7%	26.7%
Soybean oil cake meal	8.3%	13.3%
Linseed oil cake meal	6.7%	6.7%

The "pineapple bran" ration proved just as satisfactory as the "barley" ration based on maintaining the weight of the mules, general physical condition and endurance, and at prices then prevailing resulted in a feed cost saving of 2.5 cents per mule per day.

Cane tops were fed for roughages over which were poured 4 pounds of cane molasses per mule per day. One mule of each team was fed the "barley" the other the "pineapple bran" concentrate mixture, hence they did exactly the same amount of work.

Fattening Beef Steers on Feeds Produced in Hawaii

Three, good type Aberdeen-Angus steers from Maui were fed a concentrate mixture containing 27 percent of cane molasses and 36.5 percent each of pigeon pea hay meal and corn, cob and husk meal. During the first 61 days of the feeding trial they averaged 2.84 pounds daily gain and

required 7.18 pounds of the concentrate mixture to make a pound of gain. Rate of gains decreased as the experiment was continued. Two of these steers when slaughtered graded as "good" and one as "choice".

Publications During the Year

For further animal husbandry information, address the University of Hawaii requesting any of the following publications:

Bul. 73 -- Cane Molasses as a Feed for Dairy Cows.

Animal Husbandry Progress Notes -- No. 7 -- Pineapple Bran as a Feed for Mules.

Animal Husbandry Progress Notes -- No. 8 -- Green Panicum Grass vs. Green Sudan
Grass for Dairy Cows.

Animal Husbandry Progress Notes -- No. 9 -- General Report Animal Husbandry
Division -- 1933-34.

Animal Husbandry Progress Notes -- No. 10 -- Fattening Steers on Feeds
Produced in Hawaii.

